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Complete set of claims

- 1. (currently amended) A process for forming an image on a substrate, comprising the steps of:
- (a) coating on the substrate a first layer of a radiation sensitive antireflective composition;
- (b) coating a second layer of a photoresist composition onto the first layer of the antireflective composition;
- (c) selectively exposing the coated substrate from step (b) to actinic radiation; and
- (d) developing the exposed coated substrate from step (c) in a single step with an aqueous alkali developing solution to form an image;

wherein both the photoresist composition and the antireflective composition are exposed in step (c); both are developed in step (d) using a single developer; wherein the antireflective composition of step (a) is a first minimum bottom antireflective coating (B.A.R.C.) composition, having a solids content of up to about 8 weight % solids, and a maximum coating thickness of the coated substrate of $\frac{\lambda}{2n}$ wherein λ is the wavelength of the actinic radiation of step (c) and n is the refractive index of the B.A.R.C. composition and a minimum coating thickness greater than zero.

2. (original) The process of claim 1, wherein the radiation sensitive antireflective composition and the photoresist composition comprise a positive-working composition wherein the antireflective and the photoresist compositions are initially insoluble in the developer but are rendered developer-soluble upon exposure to actinic radiation.

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- 3.(original) The process of claim 1, wherein the radiation sensitive antireflective composition and the photoresist composition comprise a negative-working composition wherein the antireflective and the photoresist compositions are initially soluble in the developer but are rendered developer-insoluble upon exposure to actinic radiation.
- 4. (previously amended) The process of claim 1, wherein the B.A.R.C. composition is free of cross-linking and insoluble in the photoresist solvent.
- 5. (original) The process of claim 1, further comprising baking the coated substrate of step (a) at a temperature of 40°C to 240°C for a period of time less than 3 minutes prior to step (b).
- 6. (previously amended) The process of claim 5, wherein the baking process is free of cross-linking steps.
- 7. (original) The process of claim 1, wherein the first minimum B.A.R.C. composition has a maximum coating thickness of about 50 nm for 157 nm and 193 nm exposures, 70 nm for 248 nm exposure and 120 nm for 365 nm exposure.
- 8. (previously amended) The process of claim 1, wherein the image is free of undercutting and footing.
- 9. (original) The process of claim 1, wherein the first minimum B.A.R.C. composition comprises a dye.
- 10.(original) The process of claim 9, wherein the dye is polymer-bound.
- 11.(original) The process of claim 9, wherein the dye is non polymer-bound.

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12.(original) The process of claim 1, wherein the first minimum B.A.R.C. composition comprises a polymer derived from at least one monomer selected from the group consisting of N-methylmaleimide, mevaloniclactone methacrylate (MLMA), 2-methyladamantyl methacrylate (MAdMA), benzyl methacrylate, 9anthrylmethyl methacrylate (AMMA), styrene, hydroxystyrene, acetoxystyrene, vinyl benzoate, vinyl 4-tert-butylbenzoate, ethylene glycol phenyl ether acrylate. phenoxypropyl acrylate, 2-(4-benzoyl-3-hydroxyphenoxy)ethyl acrylate, 2hydroxy-3-phenoxypropyl acrylate, phenyl methacrylate, 9-vinylanthracene, 2vinylnaphthalene, N-vinylphthalimide, N-(3-hydroxy)phenyl methacrylamide, N-(3-hydroxy-4-hydroxycarbonylphenylazo)phenyl methacrylamide, N-(3-hydroxyl-4-ethoxycarbonylphenylazo)phenyl methacrylamide, N-(2.4dinitrophenylaminophenyl) 3-(4-acetoaminophenyl)azo-4maleimide, hydroxystyrene, 3-(4-ethoxycarbonylphenyl)azo-acetoacetoxy ethyl methacrylate, 3-(4-hydroxyphenyl)azo-acetoacetoxy ethyl methacrylate, and tetrahydroammonium sulfate salt of 3-(4-sulfophenyl)azoacetoacetoxy ethyl methacrylate.

- 13. (original) The process of claim 1, wherein the first minimum B.A.R.C. composition comprises a terpolymer of N-methylmaleimide, MLMA, and MAdMA.
- 14. (original) The process of claim 1, further comprising baking the coated substrate of step (c) prior to step (d).
- 15. (delete) The process of claim 1, wherein the developing in step (c) is conducted using an aqueous basic developer.
- 16. (original) The process of claim 1, wherein the developer is an aqueous metal ion free hydroxide.

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- 17.(original) The process of claim 16, wherein the aqueous metal ion free hydroxide is a tetraalkylammonium hydroxide.
- 18.(original) The process of claim 17, wherein the tetraalkylammonium hydroxide is tetramethylammonium hydroxide.
- 19. (original) The process of claim 1, wherein the substrate is a semiconductor substrate.
- 20.(original) The process of claim 1, wherein the wavelength of actinic radiation in step (c) ranges from about 145 nm to 450 nm.
- 21.(original) The process of claim 20, wherein the wavelength is 193 nm.
- 22.(original) The process of claim 20, wherein the wavelength is 248 nm.
- 23.(original) The process of claim 20, wherein the wavelength is 157 nm.
- 24.(original) The process of claim 1, wherein the photoresist composition comprises an acrylate or methacrylate polymer.
- 25. (original) The process of claim 1, wherein the photoresist composition comprises a cycloolefin/maleic anhydride copolymer.
- 26.(original) The process of claim 1, wherein the photoresist comprises a polyhydroxystyrene or a protected polyhydroxystyrene polymer.